



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/375,331

08/17/1999

DAVID ZERYCK

1956/116

4894

2101

7590

06/01/2004

BROMBERG & SUNSTEIN LLP

125 SUMMER STREET

BOSTON, MA 02110-1618

EXAMINER

HOANG, PHUONG N

ART UNIT

PAPER NUMBER

2126

DATE MAILED: 06/01/2004

20

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/375,331

Applicant(s)

ZERYCK ET AL.

Examiner

Phuong N. Hoang

Art Unit

2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 27 - 41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27 - 29, 33 - 34, and 37 - 41 is/are rejected.
- 7) ☒ Claim(s) 30 - 32, and 35 - 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4 and 19</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Claims 27 – 41 are pending for examination.
2. The cross-reference related to the application cited in the specification must be updated (i.e. update the relevant status, with PTO serial numbers or patent numbers where appropriate, on page 1, lines 5 – 15; the entire specification should be so revised).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 27, 33, 34, 37, and 39 – 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyder, US patent no. 6,233,624 in view of Williams, US patent no. 5,659,685.**

5. **As to claims 27 and 37**, Hyder teaches the steps of adding a device driver into a layered stack of device driver (inserting or removing link layer intermediate drivers, col. 8 lines 48 – 60) comprising the step of:

Suspending I/O operations for the layered stack (intercept of hardware interrupts, col. 6 lines 50 – 52);

Binding the device driver to the lower driver to form a layered device (bindings, col. 9 lines 1 – 25);

Binding the upper driver to the layered device (bindings, col. 9 lines 1 – 25).

Hyder teaches inserting and removing link layer drivers that would involve binding and unbinding steps to complete the process of inserting and removing drivers.

Hyder does not explicitly cite adding a device driver into a layered stack of device driver is done dynamically, unbinding an upper driver in the stack from a lower driver in the stack; restarting I/O operations for the layered stack.

Williams teaches the steps of

dynamically (dynamically, col. 3 lines 18 – 20) adding a device driver;

unbinding a driver (unbinding a driver, col. 9 lines 20 – 25);

restarting I/O operations (play, col. 7 lines 27 – 30).

It would have been obvious to one of ordinary skill in the art at the time in the invention was made to combine the teaching of Hyder and Williams's system because Williams's dynamically binding and unbinding device drivers would keep the Hyder's system running when inserting and removing layered device drivers.

Art Unit: 2126

6. **As to claims 33 and 39**, Hyder teaches the step of the layered stack is an input/output stack (stack, col. 2 lines 62 - col. 3 line 59).

7. **As to claim 34**, Hyder teaches the steps of  
registering a device driver (link layer driver, col. 3 lines 52 – 59) with an operating system (operating system component such as a registry, col. 8 line 61 – col. 9 line 7);  
and

registering the device driver with the layered device driver registration system (fig. 5 elements 304/372; col. 10 line 51 – col. 11 line 1).

8. **As to claims 40 and 41**, these are the product claims of claim 27. See the rejection for claim 27 above.

9. **Claims 28 – 29, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyder, US patent no. 6,233,624 in view of Williams, US patent no. 5,659,685, and further in view of Garney, US patent no. 5,412,798, and further in view of the applicant admitted prior art (APA) pages 1 – 2.**

10. **As to claim 28**, Garney teaches the step of the device having a name (each device has a name, col. 9 lines 46 – 57).

Hyder, Williams, and Garney do not teach the step of the lower driver emulates a device.

The APA teaches the step of the lower driver emulates a device (each LDD emulates a device, page 2 lines 1 – 5).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Hyder, Williams, Garney and the APA's system because the APA's driver emulation would provide an adjustment for the device before binding and unbinding steps.

11. **As to claim 29**, Hyder modified by Garney teaches the steps of the first device name and the second device name are unique to a particular stage or all stages of re-layering (each device has a name, col. 9 lines 46 – 57).

12. **As to claim 38**, see rejection for claims 28 and 30 above.

### ***Response to Arguments***

13. Applicant's arguments filed on 3/17/04 have been fully considered but they are not persuasive.

14. Applicant argued in substance that

- (1). Williams reference does not disclose a stack of drivers.
  - (2). Hyder does not teach unbinding an upper driver in the stack from a lower driver.
  - (3). Hyder does not recite dynamically adding a device driver into a layered stack of device drivers.
  - (4). Williams fails to address the step of dynamically reconfiguring in a layered stack.
  - (5). There is no incentive to combine the layered driver system of Hyder with the system of Williams.
  - (6). Hyder does not teach dynamically removing a device driver.
  - (7). Williams fails to disclose unbinding an upper drivers in a stack from a device driver.
15. Examiner respectfully disagree with applicant's remarks.

As to point 1, Examiner does not cite Williams for teaching a stack of drivers.

As to point 2, Examiner does not cite Hyder for teaching unbinding an upper driver in the stack from a lower driver. However, Hyder teaches binding procedures col. 9 lines 1 – 25), inserting and removing a layered device driver (inserting or removing link layer intermediate drivers, col. 8 lines 48 – 60) that would involve binding and unbinding steps to complete the process of inserting and removing drivers).

As to point 3, Examiner does not cite Hyder for teaching dynamically adding a device driver. Examiner cited Hyder for teaching adding a device driver (inserting or removing link layer intermediate drivers, col. 8 lines 48 – 60).

As to point 4, Examiner cited Williams for teaching dynamically reconfiguring device driver not layered device driver.


As to point 5, Hyder and Wiilam both teach configuring device drivers. Hyder teaches the steps of binding, adding and removing link layer drivers (inserting or removing link layer intermediate drivers, col. 8 lines 48 – 60) that would involve binding and unbinding steps to complete the process of inserting and removing drivers. Williams teaches dynamically binding and unbinding device drivers. It would have been obvious to one of ordinary skill in the art at the time in the invention was made to combine the teaching of Hyder and Williams's system Williams's dynamically binding and unbinding device drivers would keep the Hyder's system running when inserting and removing the layered device drivers.

As to point 6, Applicant does not explicitly claimed removing a device driver. However, Hyder also teaches removing a device driver (removing link layer intermediate drivers, col. 8 lines 48 – 60).



As to point 7, Examiner cited Williams for unbinding a device driver to combine with Hyder's teaching of removing a layered device driver. It is a combination of Hyder and Williams, not anyone alone, teaches unbinding a layered device driver.

***Allowable Subject Matter***

 16. Claims 30 – 32, and 35 – 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2126

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong N. Hoang whose telephone number is (703) 605-4239. The examiner can normally be reached on Monday - Friday 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703)305-9678. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)746-7140.

Ph

May 19, 2004

  
MENG-AL T. AN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100